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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/556,086

04/21/2000

Maxwell J. Wells

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01/18/2006

STAAS & HALSEY LLP

SUITE 700

1201 NEW YORK AVENUE, N.W.

WASHINGTON, DC 20005

EXAMINER

FERRIS III, FRED O

ART UNIT

PAPER NUMBER

2128

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/556,086	Applicant(s) WELLS ET AL.	
	Examiner Fred Ferris	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20,22-24,26,27,29-31 and 33-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20,22-24,26,27,29-31 and 33-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. *Claims 1-20, 22-24, 26-27, 29-31, and 33-43 are currently pending in this application have been presented for reconsideration based on applicant's arguments filed 28 October 2005. Applicants previously cancelled claims 21, 25, 28, and 32. Claims 1-20, 22-24, 26-27, 29-31 and 33-43 now stand rejected based on new grounds for rejection.*

Response to Arguments

2. *Applicant's arguments filed 28 October 2005 with respect to claims 1-20, 22-24, 26-27, 29-31, and 33-43 have been considered but are moot in view of the new ground(s) of rejection based on prior art uncovered during an updated search.*

Regarding applicant's response to 102(a/b) rejections: *The examiner withdraws the previous 102(a/b) rejection (Pheiffer, Tseng) in view of new prior art discovered during an updated search responsive to applicant's arguments. (Please see new grounds for rejection below)*

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-20, 22-24, 26-27, 29-31 and 33-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over “Music Content Analysis through Models of Audition”, Martin et al, ACM Multimedia Workshop '98, ACM 1998 in view of U.S. Patent 5,918,223 issued to Blum et al. (Of Record)

Regarding independent claims 1, 3, 5, and 6: Martin teaches method for building a computational model of human perception of music (page 1, para:3-5, page 7, para:1) by extracting representations (page 6, para:1-4, Abstract) of musical recording parameters (i.e. parameters for at least rhythm and pitch). Most importantly Martin suggests that a computational model of human perception of music should be based on the perceptions reported by a human listener (page 5, para:4, page 7, para:1-3) and that computational model descriptors of recordings should closely match perceptions as heard (reported) by a human listener (page 7, para:1, 2). Martin specifically sets forth that only a human listener can “identify genre” and realize “what other pieces or kinds of music it bears similarity to”. (i.e. a music classification system and model must account for the fact that a sample piece of music can belong to one of several “classes” (genre) of music)

Martin does not explicitly disclose combining parameters to compute a descriptor or the use of parameter weighting.

Blum et al discloses analysis and comparison of audio data files based on content where the analysis produces a numeric value (feature vector) that can classify and rank the similarity between individual audio files (Abstract). Blum further discloses the extraction of scalar descriptors that numerically describe recorded music, creating/searching a database of recorded audio data (Abstract, CL6-L12, CL6-L54, Figs. 1-5), and extracting multiple parameters from (n) number of recorded (electronic representation) audio files (CL7-L14-47, CL15-L29, Figs. 2, 14) Blum also teaches statistical weighting of audio waveform sample (recorded) parameters to compute a description (numerical) of the sample. (Abstract, CL10-L67 to CL11-L45, Figs. 6-7) In statistics, "weighting" is a technique used to assure representation of certain groups in the sample. Data for underrepresented cases are weighted to compensate for their small numbers, making the sample a better representation of the underlying population. (Source: "Statistical Methods", Freund, Academic Press, 1993) Hence "weighting" would have knowingly been incorporated by a skilled artisan, in order to provide a better representation of the descriptor parameters, and to "balance" the descriptors to match the human perception reported by listeners. Weighting techniques are also implemented by Blum (CL14-L41-65, Fig. 13) as noted above. Here amplitudes of sound files are weighted to cause statistical values to depend more on louder parts. The examiner also maintains that "combining" and "weighting" the descriptors from multiple samples of

music would be necessary in order to determine the similarity of a particular piece of music with other genres as realized by Martin.

It would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the teachings of Martin relating to a computational model of human perception of music based on perceptions of a human listener, with the teachings of Blum relating to extraction of scalar descriptors that numerically describe recorded music, creating/searching a database of recorded audio data, to realize the elements of the claimed invention. An obvious motivation exists since, as referenced in the prior art, only a human listener can “identify genre” and realize “what other pieces or kinds of music it bears similarity to”. (See: Martin, page 7, para:1, 2). Accordingly, a skilled artisan tasked with realizing a system, method, and database for music searching based on human perception, and having access to the teachings of Martin and Blum, would have knowingly modified the teachings of Martin with the teachings of Blum (or visa versa) to realize the claimed elements of the present invention.

Per dependent claims 2, 14-17: Blum would obviously include a computer readable medium containing the computer program for performing the disclosed techniques relating to music perception and a database of music recordings (Fig. 1).

Per claims 7, 10-13, 18-20, and 26: As cited above, Blum teaches a method and system for creating and searching a database of data records which are associated with music recordings. (Fig. 1) The method and system are based on a model formed from the perception of the music inclusive of extracting numeric parameters from an

electronic representation of musical recordings. Blum also considers the likeness (i.e. similarities) between the extracted representation of the various musical recordings, extracting numeric parameters (i.e. descriptors) from recordings by use of weighting parameters (CL17-L7 to CL18-L43), and computing (calculate) the correlation between recorded sections (i.e. the stored numerical descriptors). Blum also teaches identifying data records associated with a music recording in a computer readable database (CL21-L53 to CL26-L10) based on numerical parameters (descriptors) describing the music. As noted above the combination of Blum and Martin renders obvious adjusting the weighting based on human perception and using a human's perception of a sound source in modeling the effect on the descriptors (parameters describing the music and recording database) of the music as would be perceived by human subjects.

Per dependent claims 4, 8, 9, 22-24, 30-31, 33: *Blum would obviously include a computer readable medium containing the computer program for performing the disclosed techniques relating to music perception and a database of music recordings (Fig. 1).*

Per dependent claims 27, 29, 34-43: *This group of claims merely require that groups of at least two numeric parameters from well-known musical attributes relating to dynamic range, loudness, harmony, rhythm, attack, tempo, note duration, key, etc. be selected. (See: Blum Figs. 2-14)*

Conclusion

4. *The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, careful consideration should be given prior to applicant's response to this Office Action.*

U.S. Patent 6,201,176 issued to Yourio teaches listener music databases.

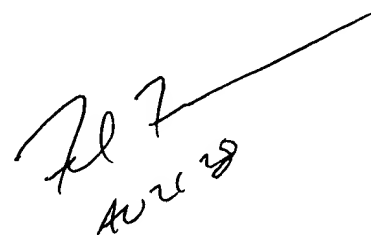
U.S. Patent 5,616,876 issued to Cluts teaches music content databases.

"Toward the Digital Music Library: Tune Retrieval from Acoustic Input", R. McNab, DL 96', ACM 0-89791-830-4-96/03, ACM 1996 teaches listener music databases.

"Content-Based Classification, Search, and Retrieval of Audio", E. Wold, et al, IEEE 1070-986X/96, IEEE 1996 teaches listener music databases.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 571-272-3778 and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 571-272-3700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached at 571-272-3780. The Official Fax Number is: (703) 872-9306

Fred Ferris, Patent Examiner
Simulation and Emulation, Art Unit 2128
U.S. Patent and Trademark Office
Randolph Building, Room 5D19
401 Dulany Street
Alexandria, VA 22313
Phone: (571-272-3778)
Fred.Ferris@uspto.gov
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Fred Ferris
1/12/06